Nortel Networks

BayStack 470-48T Policy Switch

Meeting the high-density switching needs in the wiring closet

Customer business issue

The enterprise customer is growing and is becoming more and more dependent on the data network to run its business. The customer needs a scalable solution that will address its growing networking needs. Employees need quick access to the local area network (LAN). File sharing, ERP (Enterprise Resource Planning), database, and eCommerce are mission-critical applications requiring bandwidth and rapid availability. At the same time, network budgets are getting tighter.

Resiliency is critical to maintaining minimal network downtime. Security is also important since sensitive data traffic is on the network. However, the customer has limited budget and space, requiring a solution that is cost-effective, compact, feature-rich, and future-proof.

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Customer qualifications

- Does the customer need high-density desktop connectivity?
- Is cost a major issue for purchasing networking equipment?
- Does the customer currently have (or plan to add) high-bandwidth or delay-intolerant applications on your network?
- Are resiliency and security critical to the customer's LAN?
- Is space a major issue in the wiring closet?

Nortel Networks solution

Part of the Nortel Networks successful BayStack family, the BayStack 470-48T 10/100 Policy Switch is designed to provide high-density connectivity to enterprise customers' wiring closets. Its Quality of Service (QoS) features ensure connectivity and network availability by managing and prioritizing data traffic and users for maximum performance. It is a scalable, resilient solution that minimizes capital and operational expenses. Its security features offer protection against unauthorized access to data traffic.

The BayStack 470-48T Policy Switch is a high-density, stackable 10/100 Mbps Ethernet Layer 2 switch with 48 10/100BASE-TX ports, two built-in GBIC uplink ports, as well as built-in stacking ports in a compact 1U high design.

Scalability
- Up to eight BayStack 470-48T Policy Switches can be stacked to achieve up to 384 10/100 ports for high-density desktop switching.*

Performance
- Two built-in GBIC ports for dedicated uplink connectivity to network core switches such as Passport 8600.
- Up to 16 GBIC ports are available for uplink connectivity in a full stack.
- 2.5-Gbps cascading bandwidth is higher than competitors.

Future software release in Q4, 2002.

Cost comparison

96-port solution with 1 Gigabit uplink using BPS vs. BayStack 470-48T Switches:

OPTION 1:

BPS (4):	$2,595 ea x 4	= $10,380
Cascade module	$395 ea x 4	= $1,580
Uplink module (SX MDA):	$1,295 ea x 1	= $1,295
Total Costs		**= $13,255**
Total per port cost		= $138

OPTION 2:

BayStack 470 (2):	$4,495 ea x 2	= $8,990
Cascade module:	$0 ea	= $0
Uplink module (SX GBIC):	$345 ea x 1	= $345
Total Costs		**= $9,335**
Total per port cost		= $ 97

TOTAL SAVINGS	**= $3,920 (30% savings)**

Cost-effective stackability
- Built-in stacking ports for simpler, quicker stacking as cascade modules are not required; sacrificing the GBIC ports for stacking is not necessary.

Resiliency
- Fail-safe stacking design assures continuous uptime even if any switch in the stack should fail.
- Distributed MultiLink Trunking allows aggregating ports across different switches in a stack and provides load balancing and fail-over protection for uninterrupted access to the network center.
- Also, for improved network reliability, BayStack 470-48T supports Split MultiLink Trunking in conjunction with two Passport 8600 switches by providing load sharing among all the links and fast sub-second fail-over in case of link failures.

High-availability
- With QoS support, policies can be created to give certain users or applications priority for network resources.*

Security
- Features include BaySecure MAC address-based security, Radius authentication, SNMPv3 user authentication and data encryption, password protection, and EAP (Extensible Authentication Protocol) over LAN using IEEE 802.1x.

Key solution benefits

- High-density desktop switching connectivity
- Resilient, fail-safe stacking design and redundant power support assure continuous uptime
- Cost-effective, quicker, simpler stacking
- Resilient connectivity to mission-critical devices for minimal network downtime
- High uplink capacity using two built-in GBIC uplinks
- Secure access and data traffic protection
- Network availability with QoS features that manage and prioritize data traffic and users
- Space savings with compact 1U high form factor
- Suite of common management software lowers training and installation costs

Business case and justification

Save money and time

– No need to purchase any stacking module (average cost $250 to $334)

– Save installation time with simpler, quicker stacking—simply connect the stack cable shipped with the switch!

Investment protection

– Stack compatible with Business Policy Switches (BPS)*

– QoS feature addresses the needs of mission-critical or bandwidth-intensive applications, i.e. SAP, Voice over IP, video streaming

Higher uplink bandwidth to backbone

– Both GBIC ports can be used for uplink without the need to sacrifice a port for stacking—up to 16 GBIC ports in a stack

Minimal network downtime

– Provides resilient connections to mission-critical devices for uninterrupted access

Competitive analysis

Strengths

– Built-in stacking ports

– Two built-in GBIC ports per switch

– Up to 16 GBIC ports in one eight-unit stack

– GBIC ports are not sacrificed for stacking purposes and both GBIC ports available for uplink

– 2.5 Gbps cascading bandwidth is higher than competitors

– Distributed MultiLink Trunking provides port aggregation across different switches in a stack

– First vendor with SNMPv3 support for user authentication and data encryption

– Protocol-based VLAN support

– 16,000 MAC addresses support

– GBIC SX module costs only $345

Future software release in Q4, 2002.

Objections

Objection	Response
It is not a Layer 3 switch.	Nortel Networks position for the LAN is "switch where you can and route where you must." This approach enables enterprises to build networks that are inherently simpler to install and operate, more robust, and more reliable. Also, deploying Layer 3 switches in the wiring closet increases deployment and operation costs because configuration, management, and maintenance require the services of expensive technicians. Layer 3 routing should be reserved for the enterprise core and where required, for legacy WAN interconnectivity.
Cisco already has a 48-port switch for the wiring closet. Why should I buy Nortel Networks BayStack 470-48T Switch?	**a.** Cisco Catalyst 2950G-48 switches do not offer built-in stacking ports. Cisco requires customers to purchase GigaStack modules for stacking at the cost of $250 per switch. Nortel Networks is the only major vendor in the industry to eliminate stacking modules.
	b. With Cisco Catalyst switches, GBIC uplink ports are sacrificed for stacking; only one GBIC can be used for uplink. With the BayStack 470-48T, both GBIC ports can be used simultaneously for uplink purposes. This allows the network operator to double uplink bandwidth.
	c. With Cisco switches, port aggregation cannot be done from different units in a stack. With Nortel Networks Distributed MultiLink Trunking (DMLT) feature, customers can aggregate ports from more than one switch in the stack. This provides higher fail-over protection to critical network devices. DMLT also allows use of up to 16 GBICs for uplink in a full stack of BayStack 470-48T Switches.
	d. With Nortel Networks Passport 8600 Split MultiLink Trunking (SMLT) feature, customers can create multiple active connections from BayStack 470 Switches to Passport 8600 Switches. This eliminates single points of failure in the network and provides sub-second fail-over protection in the unlikely event a link is disrupted.
	e. Cisco Catalyst switches have a cascading bandwidth of only 1 Gbps in a stack of three or more switches. BayStack 470 Switches offer 2.5 Gbps cascading bandwidth.
	f. Cisco Catalyst Switches do not support protocol-based VLANs. Baystack 470 Switches support both port and protocol-based VLANs.
Nortel Networks isn't committed to the enterprise market.	The introduction of the new BayStack 470 and 380 Switches demonstrates Nortel Networks continuing technology innovation for enterprise customers. These LAN switches are key building blocks of the enterprise data portfolio. They enable enterprise customers to build reliable, scalable, secure LAN infrastructure for next-generation wiring closets.

Primary competitors

– Cisco Catalyst 2950G-48 Switch
– 3Com SuperStack 3 4400 48-port

Competitor strengths

– Cisco is the market share leader with 3Com as number 2
– Cisco and 3Com were first to market with a 48-port switch

Competitor weaknesses

– No major competitors offer built-in stacking ports. For stacking Cisco Catalyst Switches, GigaStack module per switch at a price of $250 must be purchased. For 3Com SuperStack 3 4400, a stack module per switch at an average price of $334 must be purchased and installed.
– For Cisco Catalyst switches, GBIC uplink ports are sacrificed for stacking; only one GBIC can be used for uplink. Port aggregation cannot be done from different units in a stack. This means a maximum uplink bandwidth of only 1 Gbps can be obtained.
– For uplink capability for the 3Com SuperStack 3 4400, a Gigabit SX module must be purchased for $895 and installed. For Cisco Catalyst

switches, the SX GBIC must be purchased for $500. For BayStack 470-48T Switch, the SX GBIC costs only $345.
– For Cisco and 3Com, the cascading bandwidth is limited to only 1 Gbps. For BayStack 470-48T, the cascading bandwidth is 2.5 Gbps.
– 3Com switches do not support SNMPv3 for user authentication and data encryption.
– Cisco and 3Com switches have limited MAC address support of 8,000 entries. BayStack 470-48T Switches can support 16,000 entries.
– Cisco and 3Com switches do not support protocol-based VLANs.

Closing the deal

Please refer to the application brief "Uplink Performance and Resiliency with BayStack 470-48T Switch": http://navigate.us.nortel.com/imds?pg=/prod/bs470&view=PreSales#ProductBrief

Marketing programs

Internal: http://navigate.us.nortel.com/imds?pg=/dept/mktg/promotions
Please refer to Metro and Enterprise

Networks Channel Programs Web page under Portfolio Reach (GEM 4 Program) section and Other Programs section.

External (For Business Partners): www.nortelnetworks.com/pic. Please visit the Programs and Promotions section and click on North American Promotions.

Resources

Global Web (Internal): http://navigate.us.nortel.com/imds?pg=/prod/bs470

External (For Business Partners): www.nortelnetworks.com/pic
Follow the path: Home/My Nortel Networks/Partner Information Center/Product Documentation and Technical Reference/BayStack/BayStack 470-48T Switch

External: http://www.nortelnetworks.com/baystack470-48t

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